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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/874,538	06/05/2001	Rajankikant Jonnalagadda	H0001839	5236

7590

03/09/2004

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EXAMINER

LEO, LEONARD R

ART UNIT PAPER NUMBER

3753

DATE MAILED: 03/09/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/874,538

Applicant(s)

JONNALAGADDA ET AL.

Examiner

Leonard R. Leo

Art Unit

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8,11-13 and 17-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,8,11-13 and 17-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 16, 2003 has been entered.

Claim 14 is cancelled, and claims 1-6, 8, 11-13 and 17-21 are pending.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recitation of "said isolation and flow direction control plate" is indefinite. It is unclear whether a single or all plates are being further limited.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 1-6, 8, 11 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Zimmermann (Figure 7). Regarding claim 6, the slot h^4 is believed sized to permit a suitable pressure drop and heat exchange. Regarding claim 8, it is inherent that the skilled artisan would employ contemporary methods and tools to design the device of Zimmermann. The use of numerical methods, computer aided design, beta testing, prototyping, and trial and error experimentation to design heat exchangers is not novel.

Claims 1-4, 6, 8, 11 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Simons. Regarding claim 6, the slot 24 is believed sized to permit a suitable pressure drop and heat exchange. Regarding claim 8, it is inherent that the skilled artisan would employ contemporary methods and tools to design the device of Simons. The use of numerical methods, computer aided design, beta testing, prototyping, and trial and error experimentation to design heat exchangers is not novel.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6, 8 and 11-13 are rejected in the alternative under 35 U.S.C. 103(a) as being unpatentable over Zimmermann or Simons.

Zimmermann or Simons discloses all the claimed limitations except calculating pressure losses and sizing the isolation and flow direction control plates accordingly.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ calculate pressure losses and size the isolation and flow direction control plates accordingly. The aforementioned steps are merely typical and necessary steps in designing heat exchangers. As noted above, employing contemporary methods and tools, such as numerical methods, computer aided design, beta testing, prototyping, and trial and error experimentation to design heat exchangers is obvious.

Regarding claim 12, varying the residence time is a factor inherently considered in the contemporary methods and tools mentioned above.

Claims 17-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zimmermann or Simons in view of Maniscalco.

The device of Zimmermann or Simons lacks slots having different cross-sectional areas.

Maniscalco discloses a heat exchanger comprising a shell 6 having an inlet 14 and outlet 15; a tube side inlet 28 and outlet 29; and a plurality of IFDC plates 10 having a plurality of slots 12 of different cross-sectional areas for the purpose of gradually passing the shell side fluid through the IFDC plates to reduce pressure loss.

Since Zimmermann or Simons and Maniscalco are both from the same field of endeavor and/or analogous art, the purpose disclosed by Maniscalco would have been recognized in the pertinent art of Zimmermann or Simons.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Zimmermann or Simons IFDC plates having a plurality of slots of different cross-sectional areas for the purpose of gradually passing the shell side fluid through the IFDC plates to reduce pressure loss as recognized by Maniscalco.

Claims 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zimmermann in view of Bell, Opitzer, Jenis et al or La Mori et al.

The device of Zimmermann lacks a turbine environment.

Bell, Opitzer, Jenis et al or La Mori et al discloses it is well known in the art to employ a turbine connected in series to the shell side outlet of a heat exchanger for the purpose of reheating steam prior to its entry into the turbine stage.

Since Zimmermann and Bell, Opitzer, Jenis et al or La Mori et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Bell, Opitzer, Jenis et al or La Mori et al would have been recognized in the pertinent art of Zimmermann.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Zimmermann a turbine connected in series to the shell side outlet of the heat exchange for the purpose of reheating steam prior to its entry into the turbine stage as recognized by Bell, Opitzer, Jenis et al or La Mori et al.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harper in view of Bell, Opitzer, Jenis et al or La Mori et al.

Harper discloses all the claimed limitations except a turbine environment.

Bell, Opitzer, Jenis et al or La Mori et al discloses it is well known in the art to employ a turbine connected in series to the shell side outlet of a heat exchanger for the purpose of reheating steam prior to its entry into the turbine stage.

Since Harper and Bell, Opitzer, Jenis et al or La Mori et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Bell, Opitzer, Jenis et al or La Mori et al would have been recognized in the pertinent art of Harper.

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It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Harper a turbine connected in series to the shell side outlet of the heat exchange for the purpose of reheating steam prior to its entry into the turbine stage as recognized by Bell, Opitzer, Jenis et al or La Mori et al.

Response to Arguments

Applicants' arguments have been fully considered but they are not persuasive.

The rejection in view of Harper is withdrawn. However, the rejection of claim 21 is maintained, since the claim recites "at least one isolation and flow direction control plate," which Harper clearly discloses.

The rejection in view of applicants' admission is withdrawn. With respect to applicants' "Background of the Invention" section, the Examiner requests any and all documents associated with the "Background Art," so that the particular relevance and critical dates may be determined. The Examiner also requests applicants to specifically point out which paragraphs do not qualify as prior art under 35 USC 102. As previously discussed, pages 1-3 (i.e. paragraphs 3-11) are deemed to be prior art. For example, paragraph 4 discloses "Shell and tube heat exchangers are the ***most common*** type of the heat exchanger." Paragraphs 5-6 disclose "The use of baffle plates on the shell side of heat exchangers has been ***in existence for many years***." Paragraphs 7-10 disclose principally Figures 1-2, which flows from paragraphs 5-6. Lastly, paragraph 11 discloses that applicants are aware of the use of tube and shell heat exchangers in combination with a turbine in a CVD environment. Although, the prior art submitted on the PTO-1449 filed on January 31, 2002 are related to CVD devices, the Examiner request applicants to state their particular relevance to the instant invention.

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Upon further review of the Information Disclosure Statement filed on January 31, 2002, U.S. Patent No. 4,744,368 titled "Method and Means for Detecting Pregnancy in Domestic Farm Animal" is not pertinent to the instant invention.

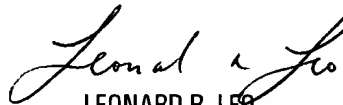
No further comments are deemed necessary at this time.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry of a general nature, relating to the status of this application or clerical nature (i.e. missing or incomplete references, missing or incomplete Office actions or forms) should be directed to the Technology Center 3700 Customer Service whose telephone number is (703) 306-5648. Status of the application may also be obtained from the Internet: <http://pair.uspto.gov/cgi-bin/final/home.pl>

Any inquiry concerning this Office action should be directed to Leonard R. Leo whose telephone number is (703) 308-2611.


LEONARD R. LEO
PRIMARY EXAMINER
ART UNIT 3753

March 2, 2004